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ABSTRACT

Using data from the 1977 Current Population Survey, this paper examines the impacts of disability on wages, labor force participation, education, and marital status. Taken into consideration are the definitions applied to the disabled, characteristics shared by the disabled, and the participation of this group in public and private transfer payment programs. Also considered are race, age, and sex variables and the implications of regional differences. Findings indicate that the disabled are likely to have less education, lower wages, work fewer hours, less likely to have employment, less likely to be married, and more likely to be below the poverty line, even when receiving payments in transfer programs, than the nondisabled. Findings also indicate that those who are nonwhite and/or female are even further diadvantaged. It is concluded that better transfer payment programs and/or education and training programs may be needed to alleviate the conditions of the disabled and reduce the poverty population. (Author/EB)

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IMPACTS OF DISABILITY AND SOME POLICY IMPLICATIONS

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Impacts of Disability and Some Policy Implications

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ABSTRACT

Impacts of disability on wages, labor force participation, education, and marital status are presented using the 1977 Current Population Survey. The disabled are defined according to program participation, inability to work full or part time and presumed participation in sheltered workshops.

Disadvantages are found to cumulate; nonwhites and the disabled are relatively worse off than the average nonwhites or disabled. Of the nonwhite disabled aged 20–64, 39.1% are members of households below the poverty line after transfers, compared to 16.1% of disabled whites aged 20–64, and 18.6% of the nonwhites who are nondisabled. The elasticities of earnings from disability are large, ranging from -.3 to -.75, depending on group and median income used.

Nearly 70% of the disabled receive some form of transfer payments. The average amount received in 1976 was $2450. But, although substantial numbers receive transfers, large numbers remain below the poverty line.

Impacts of Disability and Some Policy Implications

The disabled are a "group" served by a variety of public programs with multiple aims. Some programs try to provide necessary income; others, work skills and day care. They try, but how well do these programs work? Do they reach the disabled? Do they provide tolerable levels of income? Increase job skills? One of the difficulties in answering these questions is in defining who the disabled are. Another difficulty is that the disabled are not a homogenous group but differ widely in characteristics. A third problem is that many programs provide only for a subgroup--defined by area, previous source of employment, or type of disability, for instance--so that such questions must be directed at more narrowly defined groups.

This paper provides insight into some of these questions for some of the disabled. It uses the 1977 Current Population Survey (CPS) as the data base and takes an eclectic approach to defining members of the disabled population between the ages of 20-64 who have not been institutionalized.

Section 1 presents the methods used to define the disabled. This calls for some sleuthing and assumptions. The attempt is to include those considered disabled according to program definition and according to activity limitation (primarily work-related.) Included are several tables describing the disabled as defined here. Also, comparisons are made to another definition of the disabled.

Section 2 goes into more detail on who the disabled are--social characteristics, regional information, income and occupational distributions. Attention is focused on earnings, wage rates, and family income.

Section 3 presents information on public and private transfer programs. Comparisons are made of recipients on the basis of non-disability, regions, and other relevant characteristics. Inequities of coverage are discussed, too.

Section 4 includes discussion of ongoing work in this project and summarizes findings to date. Possible policy implications are raised.

1. DEFINING THE DISABLED

One major difficulty in all research in this area is how to appropriately define the disabled. Other recent studies have used self-reported health status,[1] which emphasizes work limitation or self-assessed capacity for work.[2] This is tied to current program definitions that emphasize the long-run or chronic nature of the disability.

One of the goals of this project is to examine how well programs are currently serving the disabled, so a recent data source is desirable--one that is nationwide, representative, and contains information on receipt of transfer income. These reasons make the most recent CPS attractive.

Not as much information on disability is available in the CPS as in alternative data sources: for example, there is no information

regarding limitations in housekeeping. But there is information about whether the amount of work the disabled person can do is limited. In addition, the information on program participation makes it possible to identify some other members of the disabled population. Thus, it seems that the most recent CPS (1977) was the best available data source for the purposes of this project.

The goal is to define all those who are disabled in a long-term sense--not just those who are working part time or who are being served by a program for the disabled. The basic group analyzed are those ages 20-64 who have not been institutionalized. Those younger than 20 are generally dependents or students, while those older than 64 are eligible for a wide variety of programs because of their age. Using the 1977 CPS, the disabled are defined by three basic categories: by program participation, by work limitation, and by low wage and participation in a sheltered workshop occupation.

By Program Participation

There are a number of programs designed specifically for the disabled. Included here are those that provide income: disability benefits under Social Security; Supplemental Security Income (SSI), an income-tested program; railroad disability annuities; workmen's compensation; and Veteran's benefits.

Except for payments under Social Security and railroad retirement, individuals who receive any dollar benefits from one or more of these programs are generally designated as disabled.[3] The exceptions include those receiving Veteran's benefits only, those who are veterans, and

nonstudents who are designated as disabled. Among Social Security recipients ages 20-64, the following distinctions are made among those designated as disabled: individuals 19-61 who are not students, and students 23-61 and widow(er)s 19-59 who have no dependant children under 18. Among those receiving railroad benefits, those under 62 are classified as disabled if they are not retired. These distinctions are based on program eligibility.[4]

The percentages defined as disabled by each definition are presented in Table 1. (Note: They are nonadditive, since an individual may be designated by more than one definition.) The total percentage of the population defined as disabled, according to program participation, is 7.0%. The total includes 9.1% of males and 5.04% of females; 6.7% of whites and 8.3% of non-whites; and 4.5% of those ages 20-34, 5.6% of those 35-44, 8.6% of those 45-54, and 12.9% of the oldest age group, 55-64.

By Work Limitation

The individuals included here either do not work or are limited in the amount of work they can perform.

Individuals who do not work are so designated for one of the following two reasons: either the main reason they did not work last year is that they were ill or disabled (variable P133=1, 1977 CPS Tape), or they are classified as unable to work on the employment status recode (variable P12=6). The latter variable is the one generally used

Table 1

Government Program and Labor Force Participation Rates for Disabled Men and Women

	Disabled as % of Population Aged 20-64		
	Male	Female	Total
Programs			
Supplementary Security Income	0.9%	1.4%	1.2%
Social Security	3.0	3.4	3.2
Workmen's Compensation	3.0	0.6	1.3
Veterans Compensation	4.7	—	2.1
All[a]	9.1	5.0	7.0
Reductions in labor force participation			
Did not work: ill last year	4.2	3.6	3.9
Unable to work: last week	2.3	0.8	1.5
Worked some last year: ill	3.1	2.4	2.7
Worked some last week: ill	0.2	0.4	0.3
All[a]	7.5	6.3	6.9
Low wage: Sheltered workshop occupation	1.0	1.9	1.5
All[a]	13.5	11.2	12.3

Source: 1977 CPS Tape.

[a]Nonadditive: many defined to be disabled by more than one definition.

by the Bureau of Labor Statistics.

Individuals are designated as "limited in amount of work" if personal illness is the reason they usually work less than 35 hours. This is done for two groups: one that worked some last week but less than 35 hours, and another that did not work last week (variable P18=2 and P19-20=10, or P23=2 and P21=1). Alternatively, they are designated as disabled if they work less than 50 weeks and most of the remaining weeks they were ill or disabled (P145=1). In a sense, this attempt to define an eligible population is quite similar to that used by Projector and Murray (1970), who attempt to define those eligible for welfare by using the 1971 CPS.[6]

Thus, this approach should include those who are unable or ill for substantial periods of time while excluding those who missed work for short periods of time because of short-term, acute illnesses. By this definition, 6.9% of the population is disabled. This includes 7.5% of males and 6.3% of females, 6.3% of whites and 11.1% of non-whites, and 3.5% of those 20-34, 5.7% of those 35-44, 9.2% of those 45-54, and 14.1% of those 55-64.

Highest percentages are designated "unable" on the basis of not working at all last year; the second highest are those who worked some last year. Unfortunately, the study directed no questions specifically toward limitations in housework, and the resulting low percentages of female disabled are probably largely the result of this omission--plus the easier substitution of housework for work in the marketplace by women who are partially disabled.

By Low Wage and Sheltered Workshop Type of Occupation

It is also desirable to include individuals who work in programs designed especially for the disabled. Many of these may not respond to inquiries directed at work limitations, so an additional definition is used. Individuals whose wage rate is positive but less than $1.00 are included as disabled if their occupation is one that is included in sheltered workshops. These include services such as nonprivate housecleaning, food, health and personnel, certain laborers, some operatives, and certain sales and clerical workers. A total of 1.46% of individuals ages 20-64 are designated as disabled by this definition. (See Appendix for a detailed listing of occupations included.)

Discussion:

Using all of these definitions, 12.3% of the population ages 20-64 is designated as disabled. This is equivalent to 14.3 million individuals. This is slightly below the 14.6% (15.5 million) designated as disabled in the 1972 Survey of the Disabled (SDA). Most of the difference is among women: in the SDA, 15.2% of women are disabled, while in this paper (W-CPS) only 11.2% are classified as disabled. The comparative percentages for males are 14.0% for the SDA and 13.5% for W-CPS. No doubt the larger difference for women is related to the lack of information relating to housewives.

Given the available data, it is not clear how to deal with this problem. Surely, we do not want to add all housewives, but we have

no information on them. By continuing with the present definition, we have an idea of the source of bias in the results: the disabled are more like the nondisabled. We have not exaggerated their numbers. If they are worse off, that may well be an under-estimate of how much worse off they are than the nondisabled population.

In other respects, the two surveys (CPS and SDA) show similar disabled population patterns: more disabled in the South than in the other major regions, fewer whites disabled than non-whites, and a greater percentage of disabled among older age groups. These characteristics are described in more detail in the next section.

2. CHARACTERISTICS OF THE DISABLED POPULATION

The disabled population tends to be older, less likely to work, and if working, less likely to work full-time. They are also less likely to be married and tend to have less education than the non-disabled, and lower wages, too, even after allowing for education differences. They are more likely to be below the poverty line, and this remains true even though they are much more likely to receive transfer payments. Thus, in addition to being disabled, they are disadvantaged in other ways.

Details of these characteristics follow. General characteristics are presented first, and then come labor force and income tabulations.

General Characteristics

The percentage of disabled by age and sex are detailed in Table 2. For both sexes, the probability of being disabled increases with age; the only exception is the close percentage of the two younger age groups of males.

Table 2

Percentage of U.S. Population Disabled, by Age and Sex

Age Categories	Male	Female
20-34	10.3	7.1
35-44	10.1	10.3
45-54	15.5	13.7
55-64	23.4	19.2
Total	13.5	11.2

Source: 1977 CPS Tape.

Table 3 shows the education distribution of the disabled and nondisabled. The disabled have significantly lower education levels, though the modes are the same for both (12 years). Some of the biggest differences occur at the very lowest levels of education--eight years and less than eight years--with much higher percentages of disabled having these relatively low levels of education. A comparison to the SDA is possible by including the education distribution for this sample. It tends to show the same overall educational differences but does highlight the fact that the education distribution has been increasing overall--the surveys are 1972 and 1977, and this holds for the disabled as well as nondisabled.

Marital status distributions for the disabled and nondisabled are presented in Table 4. It shows the lower probability of being married among the disabled. This is emphasized by the large difference in the "being married-spouse present" category in the two populations--57.7% versus 72.3%. The distribution for the SDA is also presented. It highlights the increase in percentage of divorced and disabled over the 5-year interval and shows that this increase occurred both among the disabled and nondisabled. (Note that "married" in the SDA includes both spouse-present and spouse-absent.)

Table 3

Educational Distribution for the Disabled and the Nondisabled

Years of Education	Disabled	Nondisabled	All
Current Population Survey, 1977			
Less than 8	15.7%	5.2%	6.5%
8	10.1	5.2	5.8
9-11	19.7	14.1	14.8
12	33.9	40.9	40.0
13-15	13.4	17.6	17.1
16 or more	7.3	17.0	15.8
Survey of the Disabled, 1972			
Less than 8	21.9	6.1	8.4
8	12.3	6.7	7.5
9-11	21.2	15.5	16.3
12	29.6	41.7	39.9
13-15	7.8	15.5	14.4
16 or more	6.4	13.6	12.6

Source: 1977 CPS Tape; Allan (1976, p. 21).

Table 4

Marital Status of the Disabled and the Nondisabled

Marital Status	Disabled	Nondisabled	All
Current Population Survey, 1977			
Married, spouse present	57.7%	72.3%	70.5%
Married, spouse absent	1.1	0.8	0.8
Widowed	10.7	2.3	3.3
Divorced	9.2	5.9	6.3
Separated	4.9	2.6	2.9
Never married	16.4	16.2	16.2
Survey of the Disabled, 1972			
Married	71.2	78.7	77.6
Widowed	6.9	2.8	3.4
Divorced	6.9	4.0	4.4
Separated	3.7	1.9	2.1
Never married	11.0	12.4	12.2

Source: 1977 CPS Tape; Allan (1976, p. 21).

Finally Table 5 presents the regional distribution of the disabled population. The table shows that the proportion of the disabled population living in the South is greater than that of the nondisabled population, while it is less in other regions.

Table 5

Regional Distribution of the Disabled and the Nondisabled

Region	Disabled	Nondisabled	All
North East	21.8%	23.5%	23.3%
North Central	23.7	27.3	26.8
South	35.3	30.9	31.5
West	19.2	18.3	18.4
	100.0	100.0	100.0

Source: 1977 CPS Tape.

Labor Force Characteristics

If we broadly define labor force participants to include all those who worked at all during 1976 or who looked for work, or said they did not work because they were unable to find work (remember, this population is 20-64 years old), 59% of the disabled were in the labor force. This compares to 80% of the nondisabled or 78% overall. Among women, 53%

of the disabled and 66% of the nondisabled were in the labor force. Among men, 65% of the disabled and 97% of the nondisabled were in the labor force.

Table 6 presents labor force participation broken down by race, sex, and age, for both the disabled and nondisabled populations. Except for white females 20-34, it shows that the nondisabled are more likely to be in the labor force. This deviation from an otherwise very robust finding suggests the difficulty in defining the disabled among women--many of them respond "housewife" to surveys, and there is no way to discern who may be disabled.

The percentages in the labor force are quite high in Table 6. That is because it includes all those who worked at all during 1976 or said they did not work because they were unable to find work. This definition seems appropriate for purposes of looking at characteristics of the disabled population, for a number of them may have been unable to find work. A cross tabulation on the percentages in this category revealed that 1.05% of males and 1.13% of females were unable to find work. Among the disabled, the percentages are lower--males .98% and females .56%. But there is a difficulty: those unable to work. Adding the two percentages shows that 32.1% of disabled males and 32.4% of disabled females do not work either because they are unable or unable to find work. This compares to 1.03% of nondisabled males and 1.2% of nondisabled females. By age, the percentages of these disabled individuals are:

	20-34	35-44	45-54	55-64
Male	14.7%	30.5%	38.2%	[illegible].9%
Female	16.0	25.8	35.0	48.9

Table 6

Labor Force Participation[a] of the Disabled and the Nondisabled, by Race

Sex and Age	Disabled		Nondisabled		All
	White	Nonwhite	White	Nonwhite	
Male					
20-34	86.2%	71.2%	97.2%	91.1%	95.2%
35-44	72.3	56.3	99.5	99.1	96.5
45-54	60.9	51.9	99.0	97.9	92.8
55-64	46.7	30.8	92.1	92.4	81.0
All	66.7	54.0	97.3	94.1	92.6
Female					
20-34	79.6	61.6	71.0	72.0	71.5
35-44	65.2	50.7	65.4	71.5	65.8
45-54	52.3	43.0	62.3	73.3	61.7
55-64	32.4	18.9	51.2	60.3	47.7
All	56.0	42.2	64.9	70.9	64.2

Source: 1977 CPS Tape.

[a]Labor force participation is defined to include all those who worked at all during 1976 or, if they did not work, said that they did not work because they could not find a job.

Thus large percentages of the disabled population do not work because of their disability or job structure, and the percentage increases with age for both sexes.

Instead of looking just at labor force participation, a more detailed look at percentages working full time, full-year (48 weeks or more), full time part-year, part time all year and part time part-year, and not working shows further differences between the disabled and nondisabled populations (see Table 7). Many more of disabled do not work (36% of the males and 47% of females, compared to 4% of the nondisabled males and 36% of the nondisabled females). A far lower percentage of the disabled work full time (30% of the males and 11% of the females, compared to 74% of the nondisabled males and 33% of the nondisabled females). These differences are very

Table 7

Labor Force Participation of the Disabled and the Nondisabled, by Sex

	Disabled		Nondisabled	
Labor Force Status	Male	Female	Male	Female
Do not work	36.2%	47.2%	4.1%	35.6%
Work part time, all year	3.0	5.5	2.3	7.4
Work full time, part year	25.9	23.0	16.5	13.6
Work part time, part year	4.7	13.7	3.1	10.4
Work full time	30.3	10.7	74.0	33.0

Source: 1977 CPS Tape.

substantial and suggest that transfer programs are probably essential to provide income to the disabled, many of whom do not work or, if they do work, do so for only part of the year. It raises questions, however, on whether the differences reflect handicaps that make it very difficult to work, or reflect job design, lack of training, low wage opportunities, and/or discrimination.

One way of gaining some insight into these explanations is to look at the wage rate of the disabled versus nondisabled population. Data for the wage earners among the disabled and nondisabled are presented in Table 8. As expected, the average wage rate is lower among the disabled than nondisabled. Of more interest, however, is the information on wage rates according to education level. (We observed the lower education levels of the disabled population earlier; since wages tend to increase with education, the lower average in part reflects the lower education level.)

For every education level, the average wage rate of the disabled population is below the nondisabled population. For all groups with less than 12 years of education, the average wage rate of the disabled is below the minimum wage. The lower average for some of these groups with less than 12 years of education may reflect individuals in sheltered workshops. But even among those who finished high school and went to college, the differences are large. The jump in wage rates from 9-11 years of education to 12 years is much greater for disabled than the nondisabled, possibly suggesting a high return to education for the disabled.

Table 8

Relationship between Education and Wage Rate for Disabled and Nondisabled

	Hourly Wage Rate			
	Disabled		Nondisabled	
Years of Education	$\bar{x}$	% Earning $4.00 or more	$\bar{x}$	% Earning $4.00 or more
Less than 8	$1.08	8.6%	$2.85	26.8%
8	1.79	16.1	3.18	34.7
9-11	1.87	18.2	3.24	33.9
12	2.93	29.4	3.86	42.1
13-15	3.64	38.3	4.43	46.8
16 or more	5.07	47.8	6.73	70.0
All	$2.57	25.1	$4.27	45.3

Source: 1977 CPS Tape.

More information is provided by other columns in Table 8, which show the percentage of disabled and nondisabled at each education level that have wages equal to or greater than $4.00. Again at every education level, the nondisabled have higher incomes, and a greater percentage have wages above $3.99.

Part of these differences may reflect differences in hours worked (or be reflected in hours worked). Details of wage rates, hours worked and weeks worked for males are presented in Table 9. This shows that on an average, the disabled who work, work fewer hours than nondisabled, although the difference appears small (and generally smaller than racial differences). All are quite close to 40 hours per week. Average weeks worked show somewhat larger differences, especially for whites.

Another way of getting a better picture of wage rate differentials is to look at wage rates only for full-time workers by education groups. This is presented in Table 10. It is done by race, since the earlier work indicates substantial differences by race.

This table shows that looking only at full-time workers reduces some of the difference. If we compare columns 3 and 5 of Table 8 with columns 4 and 7 in Table 10, we find a <u>much</u> higher wage rate for all groups, that differences between the disabled and nondisabled are reduced, and differences remain at all education levels.

Turning to Table 10, among males who are full-time, full-year workers, the disabled earn, in general, something under 90% of what the nondisabled earn. The biggest difference is among the lowest

Table 9

Wage Rates and Time Spent Working for
Disabled and Nondisabled Males
Who Reported Earnings

Males, by Race and Age	Av. Wage Rate		Av. Hours Worked		Av. Weeks Worked	
	Disabled	Nondisabled	Disabled	Nondisabled	Disabled	Nondisabled
White						
20-34	$4.69	$5.46	41.6 hr	42.4 hr	41.5 wk	44.9 wk
35-44	5.79	7.52	43.4	45.4	41.8	49.5
45-54	6.77	7.65	42.2	44.7	40.0	49.6
55-64	7.03	7.19	39.6	43.1	39.4	48.5
All	5.78	6.58	41.6	43.6	40.8	47.3
Nonwhite						
20-34	4.15	4.45	39.2	40.1	39.5	41.5
35-44	5.74	5.81	41.3	41.9	37.7	48.0
45-54	3.19	5.52	38.5	41.9	41.3	48.3
55-64	3.23	5.43	35.9	41.0	36.1	47.6
All	4.03	5.06	38.9	40.9	39.2	44.9

Source: 1977 CPS Tape.

Table 10

Average Wage Rates for Disabled and Nondisabled Workers,[a] by Education and Race

Education	Disabled			Nondisabled		
	White	Nonwhite	All	White	Nonwhite	All
Males						
Less than 8	$3.54	$2.26	$3.35	$4.46	$3.91	$4.32
8	4.95	2.52	4.67	5.20	4.77	5.16
9-11	5.04	3.13	4.74	5.53	4.61	5.39
12	5.42	4.33	5.33	6.18	5.01	6.08
13-15	5.98	5.41	5.91	6.72	5.73	6.65
16 or more	7.76	6.96	7.74	8.95	7.17	8.85
All	5.77	4.22	5.62	6.72	5.16	6.58
Females						
Less than 8	1.57	1.23	1.45	2.82	2.64	2.77
8	2.35	2.06	2.29	3.04	2.77	2.99
9-11	1.94	2.66	2.06	3.36	3.08	3.31
12	2.52	2.81	2.55	3.88	3.78	3.87
13-15	2.90	4.83	3.19	4.26	4.41	4.28
16 or more	4.20	5.47	4.32	5.45	5.70	5.48
All	2.60	2.85	2.63	4.12	3.98	4.10

Source: 1977 CPS Tape.

[a]Individuals working full time, full year.

education group, where the disabled earn less than 80% of what the nondisabled earn. Similarly, among women who work full time, full year, the largest difference is among the lowest education group, where the disabled earn approximately half of what the nondisabled earn. In other education groups, the disabled women also do more poorly (relative to men) compared to their nondisabled peers--earning between 62% and 79% of what their nondisabled peers earn.

Focusing now on racial differences the average wage rates are very different among the disabled and nondisabled male groups. Among the disabled, there are very large differences between white and nonwhite in the lower education groups: nonwhite earnings are between 50% and 65% of white earnings.

Among the nondisabled, there is a generally lower education level among nonwhites but no particular employment pattern according to education. Among women, there is a quite different pattern: within the disabled population, nonwhite women with 8 or fewer years of education earn less than white women with similar education; but they earn more from 1-3 years of high school through the highest education levels. The pattern is similar among nondisabled women--nonwhite women earn less at lower education levels than their white peers but more (though only slightly so) at higher levels of education.

It appears that individuals with more than one disadvantage are worst off--disabled nonwhites with low education--and perhaps we should add women, for their wages are lower than those for men in every education category. In fact, except for the two lowest categories

of nonwhite women compared to nonwhite men, nondisabled women have lower average earnings than disabled males.

Another approach is to look at wage rates within occupation categories. This may understate differences between the disabled and nondisabled since discrimination along with physical and mental disabilities may limit choice of occupation. Differences may also reflect less experience and levels of labor force participation.

Table 11 presents average wage rates by broad occupation groups. Overall, the nondisabled have higher wage rates in all occupations, but the differences range from nearly the same rates (2% difference) to 50% greater than the wage rate for disabled persons.

The differences are also presented for white and nonwhite males. Among white males, the wage rate of the nondisabled is higher in most occupations. The exceptions are household domestics and service workers. Among nonwhite males, nondisabled wages are higher in all but one occupation category--managers and proprietors.

Again, the picture of the incremental effect of two disadvantages is evident--being nonwhite compared to white, and being a disabled nonwhite compared both to disabled whites and nondisabled nonwhites.

Finally, average earnings are presented in Table 12. This shows that in general nondisabled persons earn $3000 more annually than the disabled. The biggest absolute differences are among " married males with spouse present" for both whites and nonwhites. Disabled females

Table 11

Average Wage Rates for Disabled and Nondisabled Males

Occupation	All Males		White Males		Nonwhite Males	
	Disabled	Nondisabled	Disabled	Nondisabled	Disabled	Nondisabled
Professional, technical and kindred workers	$6.44	$7.25	$7.53	$8.43	$6.80	$7.70
Managers and proprietors	6.87	7.04	7.56	7.93	6.27	5.81
Sales workers	3.61	5.44	4.04	6.99	----	5.36
Clerical workers	3.80	4.29	5.50	6.15	4.38	5.01
Craftsmen and kindred workers	6.12	6.37	6.42	6.60	5.00	5.77
Operatives, except transport	5.33	4.72	5.37	5.46	4.12	4.83
Nonfarm laborers	3.68	4.80	4.04	5.15	3.27	4.33
Private-household service workers	2.18	2.32	4.08	2.29	----	----
Service workers, except private household	2.70	3.72	4.88	4.71	3.04	4.05
Farm workers	2.74	3.15	3.01	3.32	----	1.90

Source: 1977 CPS Tape.

Table 12

Average Earnings[a] Among Disabled and Nondisabled Workers

Race and Marital Status	Males		Females	
	Disabled	Nondisabled	Disabled	Nondisabled
Whites				
Married, spouse present	$10,868	$14,960	$2,735	$5,658
Ever married, spouse absent	8,302	12,028	3,788	7,154
Never married	4,290	7,475	2,839	6,391
All whites	9,528	13,433	3,061	6,026
Nonwhites				
Married, spouse present	8,614	10,832	3,691	6,101
Ever married, spouse absent	5,454	8,401	3,276	6,069
Never married	3,553	5,848	2,474	5,563
All nonwhites	6,522	9,244	3,314	5,976
All	9,174	13,005	3,099	6,020

Source: 1977 CPS Tape.

[a]For those with positive earnings.

earn much less--only 23.8% of what nondisabled males earn and 51.5% of what nondisabled females earn. Disabled males earn 70% of what nondisabled males earn.

The picture is clear: the disabled earn less, their wages tend to be lower, they work fewer hours and are less likely to work at all.

3. EXTENT OF POVERTY AND TRANSFERS RECEIVED BY THE DISABLED

We have already seen the relatively low earnings of the disabled population ages 20-64. Some are unable to work, while others work part time and/or for low wages. To avoid living in poverty, they need to receive transfer payments; yet many of them remain below the poverty line even after receiving transfer payments. A total of 19.9% of the disabled remain below the poverty line. Even this high figure masks the much higher percentages in certain subcategories, such as the disabled among the nonwhite population--39% of this group is below the poverty line. These figures compare to 8.75% for the whole 20-64 age group and 7.2% among the nondisabled 20-64.

An alternative way to look at the extent of poverty among the disabled is to ask what percentage of the poverty population (families) have a member who is disabled? Overall, 28% of the poverty population--contrasted to 12.3% of the population as a whole--have a disabled adult 20-64 in the family unit. Thirty percent of the nonwhite poverty population have an adult who is disabled, while

27% of the white poverty population have an adult who is disabled. Thus it appears that a major reason for being below the poverty line is disability.

Description of Extent of Poverty

Table 13 presents the percentage of those below poverty of the disabled and nondisabled, breaking the group up by age, race, and marital status. In every case, the percentage is much higher for the disabled.

This does not take into account the potentially greater needs of the disabled--for special care, appliances, and so forth. All of these might change the relevant poverty line by raising it and thereby increase the percentages below the poverty line.

Among age groups, the incidence of disabled with families below the poverty line is nearly twice as high in the 20-34 age group and four times for those 45 years or older compared to the nondisabled population. Thus in these active working years, a very high percentage of disabled adults are below the poverty line.

The differences become very large when race is considered--39% of the disabled nonwhites fall below the poverty line. Another interesting statistic emerges: nearly equal percentages of white disabled and nonwhite nondisabled fall below the poverty line. Race is clearly an important factor, further accentuated by disability. The conclusion that nearly 40% of the nonwhite disabled population falls below the poverty line is one that needs investigation and may well have

Table 13

Characteristics of Disabled and Nondisabled with Families Below Poverty line

Characteristics	Disabled	Nondisabled	All
Age			
20-34	16.1%	8.8%	9.4%
35-44	22.2	6.7	8.3
45-54	20.1	5.0	7.2
55-64	22.4	5.9	9.4
Race			
White	16.1	5.7	6.9
Nonwhite	39.1	18.6	22.1
Marital status			
Married, spouse present	11.9	4.4	5.1
Married, spouse absent	37.1	21.1	23.6
Widowed	33.2	15.4	22.5
Divorced	32.4	15.0	18.2
Separated	52.6	32.2	36.5
Never married	21.4	11.1	12.4
All	19.9	7.2	8.8

Source: 1977 CPS Tape.

important policy implications. It is consistent with the generally lower wages found above.

Finally, the percentages below the poverty line are presented by marital status. Again, the percentages are consistently greater for the disabled. The lowest percentages are for those in intact families, but the difference is 2.7 times higher for the disabled than the nondisabled. The group with the largest percentage below the poverty line are the disabled who are separated--over 50%!

Because of large differences involving race, Table 14 is included. It documents the much higher percentage of nonwhite disabled persons in families below the poverty line, which is nearly two and a half times the disabled white rate. By age, the lowest percentages are in the youngest age bracket--but the difference is close to two and a half times greater for nonwhites compared to whites.

The highest percentages of families below the poverty line are among the oldest age group, and here the difference between nonwhites and whites is greatest. Approximately two and two-thirds times as many disabled nonwhites are below the poverty line compared to disabled whites--47.4%, or nearly half of this group. The differences between white and nonwhite disabled are less in terms of marital status. This partially reflects the different marital status distributions. Many disabled individuals who are not currently married are likely to be below the poverty line, and the likelihood is greater for nonwhites.

Finally, the bottom of Table 14 shows the percentages below the poverty line by amount of time spent working. Those who work full time all year are least likely to be below the poverty line in their

Table 14

Characteristics of Disabled with Families Below Poverty Line, by Race

Characteristics	White	Nonwhite
Age		
20-34	13.0%	32.4%
35-44	17.8	40.8
45-54	16.5	36.7
55-64	17.9	47.4
Marital Status		
Married, spouse present	10.5	23.8
Married, spouse absent	36.7	38.5
Widowed	26.6	55.3
Divorced	28.9	48.1
Separated	43.6	61.5
Never married	17.6	35.5
Level of labor force activity		
Full year, full time	6.1	12.6
Full year, part time	9.4	45.1
Part year, full time	11.7	19.6
Part year, part time	16.3	42.8
Do not work	25.4	52.5
All	16.1	39.1

Source: 1977 CPS Tape.

particular racial group. A very large difference exists between whites and nonwhites who work part time all year. Disabled nonwhites are nearly five times as likely to be below the poverty line as their disabled white counterparts. Part-year, part-time workers also show large differences in the number below the poverty line when divided by race. In fact, it would appear that one part of the large differences may be due to differences in the percentage of part-time workers between the racial groups. Among those who do not work, nonwhite disabled are twice as likely to be below the poverty line as whites; 52.5% are below the poverty line.

A policy issue is to determine the extent to which differences in disability "explain" differences in the percentage of the population below the poverty line. State data is used to try to gain insight into this question. The hypothesis is that more disabled will increase the percentage below the poverty line, and more specifically, that disability is an important factor in explaining poverty. Other significant factors are included, such as racial composition, percentage Black, the unemployment rate and a regional dummy for the South. Maximum AFDC payment is also included in the model under the assumption that higher payments will reduce the poverty population.

The results are presented for all states plus Washington, D.C., and a subgroup of states (38) with a sample size of nearly 900 in the 20-64 age group.[7]

These regressions indicate that the percentage of the population

below the poverty level and the percentage disabled are linked. The percent disabled and maximum AFDC payment are the only variables that are significant in the regressions reported in Table 15. A one percent change in the percentage disabled is associated with nearly a one-half percentage-point increase in the population in poverty. Thus, disability appears to be an important factor in explaining poverty.

Transfer Payments

Part of the income of these disabled persons is transfer payments, including welfare, Social Security, SSI, Veteran's benefits and railroad payments for disabilities. Table 16 shows the percentage of disabled and nondisabled receiving transfer payments. Nearly seventy percent (67.8%) of the disabled receive some form of transfer payments. The average payment is $2450 per disabled recipient. This is much more than the nondisabled population. The nearly twenty percent of the disabled population who remain below the poverty line receive payments equal to $2204 per recipient, or an average of $1528 per disabled person. Nearly as high a percentage of the disabled above the poverty line receive transfers; the average transfer among this group is somewhat greater ($2518 per year per recipient). The disabled ages 20-64 are thus much more likely to receive transfers and to receive larger transfer payments. Unfortunately, a sizeable number of disabled people remain below the poverty line even after receiving transfer payments (19.9%).

Table 15

Regressions for Link Between Poverty and Disability

Dependent Variable = Percentage of the Population Below the Poverty Line

		Subsample
Percentage disabled, aged 20-64	.48 (2.58)*	.49 (2.08)*
State unemployment rate[a]	-.01 (.07)	-.10 (.44)
Percentage black in state[b]	.04 (1.19)	.09 (1.41)
Maximum AFDC payment[b]	-.01 (3.42)*	-.02 (2.95)*
South	.51 (.50)	-.19 (.14)
Constant	6.93	7.54
Adj R^2	.63	.65
N	51	38

Source: 1977 CPS Tape.

[a]U.S. Bureau of the Census (1977b).

[b]Campbell and Bendick (1977).

*Significant at 5% level (t statistics in parentheses).

Table 16

Transfer Payments to Disabled and Nondisabled, by Poverty Status

Poverty Status	Transfer Payments		
	Disabled	Nondisabled	All
Below poverty line			
% Receiving	69.3	30.1	41.1
Mean amount	$2,204	$2,234	$2,220
Above poverty line			
% Receiving	67.4	9.6	10.3
Mean amount	$2,518	$1,625	$2,126
All			
% Receiving	67.8	11.1	18.1
Mean amount	$2,452	$1,740	$2,066

Source: 1977 CPS Tape.

More detail on transfer payments is presented in Table 17. This divides the payments into those specially designed for the disabled, and other kinds of transfer payments. (Amounts are not included, since some of the components fit into both categories.) It also includes regional information.

Overall, approximately 50% of the disabled receive benefits from transfer programs designed for the disabled. There is only limited variation from region to region. Among those still below poverty after transfer payments, only 36.8% receive benefits from these specially-designed programs. Other transfers help 32.5%--but this low percentage may partially explain why they remain below the poverty line.

Details on the type of transfer payments received are presented in Table 18. The last column gives the percentage of disabled by sex who receive each of the specified transfer payments. Social Security/ railroad annuities and Workmen's Compensation/Veteran's benefits are by far the largest programs. Nearly one-third of the disabled receive transfers from each of these programs. Many more disabled men receive benefits from Workmen's Compensation, Veteran's benefits and unemployment insurance than disabled women. Only 6.5% of the disabled receive welfare. Thus there appears to be limited substitution of welfare benefits for the benefits of other programs that are aimed more specifically at the disabled.

Few of the disabled receive SSI--a federal program to provide income to the disabled who are poor. Only 9.7% receive such payments, and the average amount received is also low.

Table 17

Regional Distribution of Transfers to Disabled and Nondisabled, by Poverty Status

Disability Status	North East	North Central	South	West	All
Disabled					
Below poverty line					
Disability transfer	38.6%	34.9%	40.8%	26.4%	36.8%
Other transfers	36.5	37.1	26.9	37.8	32.5
Above poverty line					
Disability transfer	55.0	52.8	50.8	58.7	53.8
Other transfers	14.6	12.7	13.2	14.4	13.6
All					
Disability transfer	52.3	49.6	48.3	53.2	50.4
Other transfers	18.2	17.0	16.6	18.4	17.4
Nondisabled					
Below poverty line	41.6	30.8	23.5	30.6	30.1
Above poverty line	11.4	9.3	7.9	10.9	9.6
All	13.2	10.6	9.3	12.3	11.1

Source: 1977 CPS Tape.

Table 18

Transfer Payments Received by Disabled, by Region, and Sex

Source of Transfer	North East		North Central		South		West		All		All
	M	F	M	F	M	F	M	F	M	F	
SSI											
% receiving	5.8	13.4	4.8	9.5	7.7	14.6	9.3	12.7	6.9	12.8	9.7
Mean amount	$1,607	1,557	1,228	1,376	1,274	1,214	1,642	1,901	1,429	1,444	1,433
SS/RR											
% receiving	26.4	36.8	27.7	34.6	29.1	37.5	24.3	33.1	27.2	35.8	31.3
Mean amount	$3,014	2,224	3,029	2,263	2,660	2,077	2,862	2,338	2,860	2,197	2,508
WC, UI, VC											
% receiving	52.1	13.9	52.6	10.6	46.8	11.2	57.2	17.3	51.4	12.7	33.2
Mean amount	$1,797	1,364	1,873	1,558	2,065	1,345	1,936	1,467	1,930	1,423	1,840
Welfare											
% receiving	4.6	10.7	4.1	11.0	2.5	7.8	4.2	11.1	3.6	9.8	6.5
Mean amount	$2,374	2,747	2,155	2,126	1,177	1,297	1,812	2,024	1,908	2,012	1,981
All											
% receiving	78.2	61.3	79.1	53.3	72.8	56.3	81.0	59.7	77.1	57.3	67.8
Mean amount	$2,472	2,465	2,488	2,460	2,563	2,142	2,507	2,498	2,513	2,355	2,450

Source: 1977 CPS Tape.

The percentage of disabled receiving payments differs somewhat by region. The South is lowest on state-administered programs but high on federal programs. They have a significantly smaller percentage of disabled receiving welfare and a lower percentage receiving transfers (54.9%) than any other region. The average dollar amount of transfers per disabled person is less in the South (at $2390) than nationwide and nearly $120 less than the disabled in the West, who receive $2,510. While it appears disabled males are less likely to receive benefits in the South, it is disabled females who receive lower benefits per recipient. A substantial part of this last difference is because of lower welfare payments to women. Because of this, Table 19 is included. This shows welfare payments to the disabled by region and differentiates between those above and below the poverty line.

This table reaffirms the results of Table 18. The probability of receiving welfare among the disabled is far lower in the South, particularly for those who remain below poverty. (The causality presumably works the other way--low payments plus low probability, leading to more poverty.) The differences are quite large in every row comparing both percentage receiving welfare and average payment per recipient.

Another way of looking at transfer payments is with regard to labor force participation. Are those who work more or less likely to receive benefits, and if they receive them, do they receive lower benefits? Table 20 presents a cross tabulation of receipt of transfers by sex. Only the hypothesis on amount received is substantiated, and only weakly for women. The probability of receiving transfers

Table 19

Welfare Received by Disabled, by Region and Poverty Status

Transfer Payments	North East	North Central	South	West	All
% receiving transfers					
All	7.4%	7.4%	5.0%	7.2%	6.5%
Below poverty	27.3	29.0	14.1	23.9	21.1
Above poverty	3.4	2.8	2.0	3.8	2.9
Average amount received					
All	$2,622	$2,134	$1,266	$1,955	$1,981
Below poverty	2,634	2,213	1,288	1,969	1,992
Above poverty	2,603	1,960	1,214	1,937	1,961

Source: 1977 CPS Tape.

Table 20

Transfers to Disabled, by Labor Force Participation and Sex

	Labor Force Participation				
Disabled	Full time/ Full year	Full time/ Part year	Part time/ Full year	Part time/ Part year	Do Not Work
Males					
% receiving	83.9%	61.1	74.2	55.1	85.8
Mean amount	$1,450	$1,967	$2,119	$2,526	$3,689
Females					
% receiving	47.3	37.4	44.2	41.2	75.3
Mean amount	$2,074	$1,855	$2,081	$2,332	$2,538

Source: 1977 CPS Tapes.

seems to have little to do with working, except that those who do not work at all are more likely to receive benefits than those who worked during the year. This table suggests that the disincentive to work in the transfer programs which aid the disabled may not be a serious problem.

Since one concern with transfer programs for the disabled is that they increase the numbers of disabled (i.e., those who declare themselves sufficiently disabled to receive benefits), further analysis should be conducted to try to estimate whether or not these effects are present.

State benefit levels differ, while federal programs--Social Security, Veteran's benefits and railroad annuities--should, in general, be the same regardless of the state of residence. For this reason, analysis is done on the state level.

If disability is related to transfer payments, we would expect to find a positive relationship between the percentage disabled in each state and the amount of expected transfer payments. This should be influenced both by the expected level of transfer payments and by the probability of receiving payments--of being found eligible and going through the process in order to be found eligible for the program(s). These two variables represent an incentive to be declared disabled.

A related factor is the unemployment level in the state. The unemployment rate may be positively related to the disability rate, but this may not be causal. The disabled are more likely to be unemployed, so a positive coefficient may reflect this differential. Poorer labor market opportunities, as reflected in the unemployment rate, may increase the percentage of disabled. (Note: The unemployment

rate is the standard measure and does not include those who say the reason they did not work is that they were unable to find work.)

A regional variable--the South--is included in the model. Earlier tables suggested that there are more disabled in the southern states. This may simply reflect the variables discussed above, but it may also reflect the more attractive climate. To the extent it reflects factors already included, we would expect the residual effect to be insignificant; if it is the latter, we expect a positive and significant coefficient on a dummy variable for the southern region.

One other factor which might be important in "explaining" state differences is the proportion of Black people in each state. Earlier, we noted the higher percentage of nonwhites who were disabled. To the extent this reflects differential opportunities, it may be picked up in the other included factors. If so, the percentage of Blacks should be insignificant. If the difference reflects higher levels of disability--possibly from past jobs--then we expect a positive and significant coefficient on this variable.

Finally, in an alternative specification, the maximum AFDC payment by state to a family of four as of July 1976 is included. The hypothesis is that in states with low payments--which may also be associated with greater difficulty in obtaining benefits--more individuals will try

to receive other payments, such as disability transfer payments. The expected effect is therefore negative--higher AFDC payments are associated with a lower percentage of those designated as disabled.

Two samples of states are included in the table. The first includes all states and Washington, D.C. Some of these have small samples, making estimates less reliable. The second is a subsample of 38 states. Those with observations of 898 persons or more in the 20-64 age range are included in this analysis. The results are similar for both.

The significant findings are 1) the positive association between the unemployment rate and percent disabled, 2) the positive association between percent of disabled receiving benefits and the percent disabled, 3) the positive and large coefficient on the dummy variable for the South, and 4) the positive though somewhat weaker association between the percentage Black in the state and the percentage disabled.

The average amount of benefits received and maximum AFDC rates are not statistically significant on a regular basis but do have the expected signs.

These preliminary results do present evidence of the small effects of the incentives to be called disabled. Poorer labor market opportunities are associated with a higher percentage of disabled. (It should be remembered that part of this effect may be that disability leads to unemployment.) The evidence suggests that a 1% increase in unemployment is associated with a .2 to .3 increase in the percentage termed disabled. Since the standard deviation is almost 2 (1.9), the unemployment rate could only account for very small differences in the percentage disabled. It is so small that the alternative explanation--that more disabled increases the unemployment rate--seems plausible.

Table 21

Regressions for Labor Market and Transfers

Dependent Variable = Percentage Disabled

		Subsample of States		Subsample of States
1976 State unemployment rate[a]	.16 (1.20)	.21 (1.57)	.22 (1.92)*	.25 (1.96)*
South	3.25 (6.57)*	3.21 (6.19)*	1.52 (2.54)*	1.81 (2.59)*
% Black in state[b]			.18 (1.86)*	.17 (1.57)
Average transfer received	.001 (.61)	.002(1.51)	.0004(.48)	.001(1.01)
% Disabled receiving transfers	.15 (3.08)*	.17 (3.13)*	.13 (3.17)*	.15 (2.98)*
Maximum AFDC payment[b]			-.01 (1.88)	-.003 (.92)
Constant	-1.20	-5.68	.27	-3.37
Adj. R^2	.47	.55	.60	.62
N	51	38	51	38

[a]U.S. Bureau of the Census (1977b, p. 396).

[b]Campbell and Bendick (1977). Percentage black in state is for July-July 1974-76. Maximum AFDC payment is based on family of four and only includes payment for basic needs. The data are for July 1976.

*Significant at 5% level; appropriate 1- or 2-tailed test (t statistics in parentheses).

The positive and significant association between percentage of the disabled receiving benefits and percent disabled is of greater interest. It suggests that where the probability is greater of being declared eligible for payments, more individuals may seek to do so. (Unfortunately, for analysis purposes, our use of some transfer payments to define the disabled may be linked to or explain this finding.) Even so, one standard deviation 5 would only account for a .7 to .8 increase in the percentage disabled. The weak finding on the average transfer payment received--which has a standard deviation of approximately $250--indicates that it is the probability of receipt, not dollar payment, which appears to be important.

The effect of maximum AFDC payments is as expected--negative. This may indicate that AFDC is seen as a substitute for transfer payments for disability. Higher payments in AFDC, particularly if they are associated with fewer eligibility problems, could reduce the number of people applying for other forms of transfers, such as disability programs.

The significance of AFDC payments appears related to the percentage Blacks in the population. When the percentage of Blacks is included as a separate variable, the significance of AFDC payments is reduced. Instead, the percentage of Blacks shows the expected positive association with the percentage disabled. The reasons for this association may be historical--the result of poorer health care and/or riskier jobs--or be more current, such as poorer job opportunities.

Together, these results present some limited evidence in support of the notion that the generosity of transfer payment programs (in terms of benefit levels and eligibility criteria) increase the percentage of the population termed disabled. To the extent there is an effect, it appears to be related to the probability of receiving transfer payments rather than the amount of the payments.

4. SUMMARY AND SUGGESTIONS FOR FUTURE WORK

We have seen that the disabled, as a group, have many other disadvantages. They are likely to have less education, lower wages, work fewer hours, less likely to have employment, less likely to be married and more likely to be below the poverty line than the nondisabled. They are more likely to receive transfer payments but still remain below the poverty line.

There is evidence of a compounding of disadvantages. If we look at other characteristics frequently associated with lower socioeconomic status, such as race, education and sex, we find that the nonwhite disabled do relatively worse than the White disabled. In an effort to try to sort out the influences, two regressions were run. Earnings is the dependent variable. Earnings is defined to include wages and salaries, self-employed business income and farm self-employment income. Those with negative earnings, no earnings and positive earnings are all included. Separate regressions are run for men and women but

not racial groups, since the objective is to look at the factors affecting earnings.

Stratification is done by sex, since the labor markets--on both the participation and demand sides--seem quite different. And, as noted earlier, we may have underestimated the number of disabled among women. If so, our results may be weaker for women.

Two versions are presented (see Tables 22 and 23). The first includes disability, race, education, marital status, age and other variables generally found to influence earnings: regions and farm and urban areas. The second version adds the interactions between disability and a number of the other factors found to be significant in our earlier analyses: race, education and age.

The first equation for males reconfirms the large and negative effect of disability on earnings: the coefficient (partial derivative) is above 5000 and the t statistic is very large (45). The other results are as predicted--a large negative relationship between race and earnings. Also, the education dummies show that those with more education have higher earnings (12 years is the omitted category). The regions should be picking up differences in labor market conditions, including differences in cost of living (Pacific is the omitted category). The urbanization factors show the lower earnings of those living on farms and highest earnings of those living in suburbs.

The "not identified" group is unfortunately a by-product of the state identification in the 1977 CPS and small sample sizes in some communities (non-SMSA is the omitted category). Marital status

Table 22

Impact of Disability on Earnings: Evidence from Regressions for Males

Characteristics	Noninteracting		Interacting		$\bar{x}$	σ
Disabled-dummy	-5189.37	(-45.48)*	1505.50	(2.73)*	.13	.34
Nonwhite-dummy	-1986.47	(-14.96)*	-2157.16	(-15.02)*	.10	.30
Education						
<8 yrs	-4855.54	(-30.38)*	-5032.65	(-27.53)*	.07	.26
8	-3618.62	(-21.85)*	-3663.20	(-19.93)*	.06	.25
8-11	-2445.46	(-20.18)*	-2400.36	(-18.32)*	.14	.34
13-15	664.40	(5.98)*	630.27	(5.35)*	.18	.38
16	4004.50	(29.81)*	4126.97	(29.66)*	.10	.31
≥17	6432.00	(43.58)*	6578.45	(43.10)*	.08	.28
Regions						
New England	-1513.42	(-8.28)*	-1515.82	(-8.33)*	.06	.25
MidAtlantic	-1179.35	(-8.31)*	-1164.10	(-8.23)*	.15	.35
East NorthCentral	-3.82	(-.03)	-18.39	(-.13)	.16	.37
West NorthCentral	-1016.05	(-6.22)*	-1012.63	(-6.23)*	.10	.30
South Atlantic	-1154.14	(-7.97)*	-1145.96	(-7.94)*	.14	.34
East SouthCentral	-1528.86	(-7.94)*	-1529.47	(-7.97)*	.06	.23
West SouthCentral	-1107.16	(-6.74)*	-1076.04	(-6.57)*	.09	.28
Mountain	-1341.31	(-7.98)*	-1322.59	(-7.90)*	.10	.30
Urbanization						
Farm	-2050.00	(-10.80)*	-2082.69	(-11.01)*	.04	.21
Centercity	328.32	(2.95)*	307.84	(2.78)*	.24	.43
Suburb	1627.74	(15.74)*	1597.11	(15.51)*	.33	.47
Not identified	257.24	(1.92)	221.83	(1.66)	.15	.36
Marital status						
Married, spouse present	2134.89	(5.53)*	1781.26	(4.03)*	.74	.44
Married, spouse absent	-218.92	(-.37)*	-536.13	(-.85)	.01	.08
Divorced	-522.06	(-1.24)	-810.18	(-1.70)	.05	.21
Separated	-228.05	(-.48)	-569.49	(-1.09)	.02	.13
Never married	-2036.44	(-5.08)*	-2401.86	(-5.28)*	.18	.38

Table 22--Continued

Characteristics	Noninteracting		Interacting		$\bar{X}$	σ
Age	1133.72	(49.29)*	1115.53	(48.29)*	39.1	13.04
$(Age)^2$	-12.44	(-45.48)*	-11.95	(-43.24)*		
Disab x Nonwhite			1002.28	(2.91)*		
Disab x Ed						
<8			1109.29	(2.93)*		
8			717.33	(1.70)		
9-11			-43.01	(-.12)		
13-15			268.62	(.79)		
16			-1013.13	(-1.98)		
≥ 17			-1780.42	(-3.15)*		
Disabled x age			-178.46	(-7.94)*		
Disabled x age^2			.33	(1.29)		
Constant	-11767.22		-11504.31			
adj R^2	.32		.32			
N	40,972		40,972			

Source: 1977 CPS Tape.

Note: The mean and standard deviation of the dependent variable, total earnings are $11,582 and $9,298 respectively.

*Significant at 1% level.

Table 23

Impact of Disability on Earnings: Evidence from Regressions for Females 20-64

Characteristics	Noninteracting		Interacting		$\bar{x}$	σ
Disabled-dummy	-1894.51	(-28.74)*	-374.41	(-1.56)	.11	.31
Nonwhite-dummy	113.88	(1.75)	215.43	(3.07)*	.11	.32
Education						
<8 yrs	-2146.93	(-25.35)*	-2281.73	(-23.68)*	.07	.25
8	-1521.38	(-17.14)*	-1646.49	(-16.81)*	.06	.23
8-11	-1319.80	(-22.33)*	-1387.23	(-21.91)*	.15	.36
13-15	240.46	(4.13)*	261.86	(4.31)*	.16	.37
16	1767.09	(23.88)*	1837.11	(24.15)*	.09	.28
≥17	4657.75	(44.13)*	4681.30	(43.38)*	.04	.19
Regions						
New England	-282.34	(-2.97)*	-275.57	(-2.91)*	.07	.25
MidAtlantic	-371.36	(-5.05)*	-367.11	(-4.99)*	.15	.36
East NorthCentral	-212.02	(-2.92)*	-215.62	(-2.97)*	.16	.37
West NorthCentral	-264.01	(-3.05)*	-270.16	(-3.13)*	.09	.29
South Atlantic	17.99	(.24)	16.40	(.22)	.14	.35
East SouthCentral	-320.83	(-3.23)*	-324.55	(-3.27)*	.06	.26
West SouthCentral	-439.53	(-5.15)*	-443.44	(-5.20)*	.09	.29
Mountain	-526.68	(-5.90)*	-528.34	(-5.92)*	.10	.30
Urbanization						
Farm	-1028.60	(-9.86)*	-1025.87	(-9.85)*	.04	.20
Centercity	364.93	(6.38)*	371.51	(6.50)*	.25	.44
Suburb	185.66	(3.44)*	187.55	(3.48)*	.32	.47
Not identified	-62.58	(-.88)	-64.03	(-.91)	.14	.35
Marital status						
Married, spouse present	-1491.81	(-15.61)*	-1867.73	(-16.01)*	.70	.46
Married, spouse absent	-325.02	(-1.46)	-717.75	(-3.08)*	.01	.10
Divorced	1039.06	(8.87)*	653.96	(4.80)*	.07	.26
Separated	-684.42	(-4.83)*	-1071.94	(-6.78)*	.03	.18
Never married	437.14	(3.89)*	32.84	(.25)	.13	.33

Table 23--Continued

Characteristics	Noninteracting		Interacting		$\bar{X}$	σ
Age	264.92	(22.94)*	263.56	(22.80)*	39.35	13.15
$(Age)^2$	-3.00	(-21.62)*	-2.96	(-21.20)*		
Disab x Nonwhite			-664.54	(-3.88)*		
Disab x Ed						
≤ 8			769.57	(3.74)*		
8			762.12	(3.25)*		
9-11			510.81	(2.91)*		
13-15			-284.96	(-1.34)		
16			-1323.17	(-4.05)*		
≥ 17			-195.86	(-.97)		
Constant	-453.54		-103.32			
adj R^2	.16		.16			
N	44,644		44,644			

Source: 1977 CPS Tape.

Note: The mean and standard deviation of the dependent variable, total earnings are $3665 and $4338 respectively.

*Significant at 1% level.

results reaffirm the higher earnings of those married with spouse present and the lowest earnings in the never-married group (widowed is the omitted category). Finally, the quadratic form of age is as expected: Increasing earnings reach a maximum at 46 years of age.

The results of the first non-interacting equation for women also shows the expected strong negative effect of disability--the partial derivative is nearly $2000 and quite significant. Race is not significant. The education pattern is similar to the male pattern--increasing as education increases. The regional effects are somewhat smaller than among men. A center-city location is associated with the highest earnings rather than the suburbs--a not-surprising difference from men. Farm residence has the largest negative coefficient. The marital pattern is quite different from males. The positive relationship is greatest for divorced and lowest for married, spouse present. Recalling that we are explaining earnings, not income, this must partially reflect differences in labor force participation. Finally, the quadratic formulation of age again shows the increasing earnings, reaching a maximum at 44, quite similar to the male maximum.

Comparing male and female results, elasticities seem appropriate. The elasticity at the respective mean incomes are -.52 for females and -.45 for males, showing a slightly greater effect of disability on female earnings than male earnings. (This should be biased down for women, since some disabled are not defined as disabled among women--see Section 1.)

The interacting results are included in the second model. Since the partial derivative of the relationship between disability and income cannot be read directly from the table, they are presented in Table 24. These results show that, for both men and women, the negative "impact" of disability increases quite substantially with age. The education results are not quite as clear. The largest coefficients are for higher levels of education for both sexes. Among women the largest coefficient is for 16 years, or completion of college. For men, it is the highest education group--graduate training. In a sense, though, these results may be somewhat deceiving in that the impact relative to average earnings in the group may be greater at lower levels of education; that is, the elasticities may follow a different pattern.

The race results among males initially appear to be unexpected. The coefficient is larger for white males than nonwhite males. Females follow the more expected pattern, with nonwhite females having the larger negative coefficient. However, if we use the average incomes presented in Table 12, we can compute elasticities. Doing this, the elasticity of the impact of disability on earnings is always greater for nonwhites than whites. If we use average earnings of the non-disabled, the elasticities are for males, white -.33, nonwhite -.44; and females, white -.30, nonwhite -.42.

If the average earnings of the disabled are used instead, the elasticities are: Male: white -.54; nonwhite -.63; Female: white -.60; nonwhite -.75. Thus, the compounding notion theorized above on the basis of bi- and tri-variate analysis is confirmed in the regression results.

Table 24

Partial Derivatives of Disability on Earnings

	Ages[a]				
	25	35	45	55	65
Males	-2748	-4334	-5853	-7305	-8555
Females	-1397	-1696	-1933	-2107	-2210

	Education[b]					
	< 8	8	8-11	13-15	16	≥17
Males	-3992	-4384	-5144	-4833	-6115	-6882
Females	-1053	-1060	-1312	-2107	-3146	-2318

	Race[c]	
	Whites	Nonwhites
Males	-5101	-4099
Females	-1822	-2487

Source: 1977 CPS Tape.

[a] Based on white individual with 12 years of education.

[b] Based on 40-year-old white.

[c] Based on 40-year-old with 12 years of education.

Overall, then, this paper suggests that the disabled are disadvantaged in many ways and that those with other so-called disadvantages are even worse off.

Further, although the majority of the disabled receive some transfer payments, nearly 20% of them remain in families whose incomes are below the poverty line. This percentage is a startling 39.9% for non-white disabled.

A simple model suggested that transfer payment programs for the disabled barely affect the number defined as disabled. The only significant factor was the probability of receiving benefits as measured by the percentage who are currently recipients. Only a small percentage of the disabled receive AFDC payments, so there is limited substitution of welfare for programs directed at the disabled.

The disabled account for a large part of the poverty population. Both for purposes of alleviating the poor conditions of the disabled and reducing the poverty population, better transfer programs and/or education and training programs may well be appropriate.

APPENDIX A

Occupations included as sheltered workshops if wage rate $\leq$ $1.00

Detailed Occupation

Professional, technical, and kindred workers
- Health workers, except practitioners
- Other professionals--salaried

Sales workers
- Retail trade
- Other

Clerical workers
- Bookkeepers
- Office machine operators
- Stenographers, typists, and secretaries
- Other clerical workers

Craftsmen and kindred workers
- Carpenters
- Other construction craftsmen
- Machinists and job setters
- Metal craftsmen, except mechanics and machinists and job setters
- All other craftsmen

Operatives except transport
- Other durable goods
- Nondurable goods
- All other

Nonfarm laborers
- Construction
- Manufacturing
- All other

Service workers, except private household
- Cleaning service
- Food service
- Health service
- Personal service
- Protective service

Appendix B State Data on the Disabled

	Percent Disabled	Percent Disabled Below Poverty Line	Percent Disabled Receiving Transfers	Percent Poverty Population that is Disabled
Maine	13.0%	17.6%	74.6%	22.7
New Hampshire	10.6	12.7	69.1	21.9
Vermont	13.1	25.4	71.8	34.3
Massachusetts	11.5	14.7	67.9	25.4
Rhode Island	14.6	9.7	77.6	19.8
Connecticut	11.3	15.2	64.6	27.5
New York	11.0	18.9	71.7	25.4
New Jersey	12.3	14.8	71.6	34.8
Pennsylvania	11.6	15.5	69.4	23.0
Ohio	11.8	17.5	67.6	31.6
Indiana	11.1	15.7	63.1	25.1
Illinois	9.3	16.8	61.5	21.8
Michigan	13.3	20.1	68.5	37.3
Wisconsin	8.5	17.8	60.2	21.9
Minnesota	9.3	16.8	73.5	22.7
Iowa	9.8	16.6	73.4	22.3
Missouri	12.3	17.3	72.2	25.0
North Dakota	10.7	14.0	66.4	14.3
South Dakota	9.9	17.1	73.5	14.1
Nebraska	9.5	14.5	62.7	22.0
Kansas	10.9	20.7	62.5	21.4
Delaware	11.6	14.4	61.7	28.3
Maryland	10.0	15.9	64.4	30.1
District of Columbia	13.7	27.9	61.7	30.7
Virginia	13.1	18.6	59.5	39.2
West Virginia	17.4	18.4	74.0	35.8

	Percent Disabled	Percent Disabled Below Poverty Line	Percent Disabled Receiving Transfers	Percent Poverty Population that is Disabled
North Carolina	14.9%	27.4%	67.9%	33.2
South Carolina	15.5	25.6	54.3	29.3
Georgia	14.4	25.4	63.5	27.3
Florida	14.6	26.4	69.2	34.2
Kentucky	12.9	21.0	58.5	32.9
Tennessee	16.9	25.4	68.4	31.1
Alabama	15.5	27.8	65.2	34.5
Mississippi	14.1	32.5	66.9	27.3
Arkansas	15.7	32.0	71.5	31.7
Louisiana	14.0	34.4	72.4	30.9
Oklahoma	13.7	23.9	69.3	35.7
Texas	11.6	24.8	59.5	26.8
Montana	11.3	22.9	64.8	27.4
Idaho	13.5	23.7	72.2	35.9
Wyoming	10.8	16.1	63.8	20.4
Colorado	11.3	18.6	66.2	26.1
New Mexico	14.5	27.7	69.7	29.6
Arizona	13.6	23.2	65.0	28.7
Utah	10.8	15.1	74.8	23.0
Nevada	9.6	9.4	61.3	15.9
Washington	12.9	19.9	68.4	30.2
Oregon	10.6	22.8	64.5	27.8
California	13.6	14.8	74.4	23.8
Alaska	8.6	12.6	64.3	14.2
Hawaii	8.1	16.3	74.0	24.4
All	12.3	19.9	67.8	28.0

NOTES

[1]See, for example, Luft (1975), who used the 1967 Survey of Economic Opportunity Data.

[2]This is the basis for the 1972 Survey of the Disabled.

[3]The 1977 CPS enables far better identification of recipients for many of these programs than earlier CPS surveys. For example, veterans' pensions and other payments are separated.

[4]The source for the definitions under Social Security and Veteran's benefits is U.S. Dept. of Health, Education, and Welfare, 1974.

[5]It may however include those with very limited disabilities who receive small amounts of Veteran's benefits for disability, while excluding those who change jobs because of disabilities but are working full time at less strenuous jobs.

[6]Their procedure for defining the eligible disabled population is persons who worked less than 50-52 weeks in 1970 because of illness.

[7]See Holmer (1979) for more detail on validity in regard to sample size.

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